

# LIFE 2.0: Living in a Digital World

Written by Robert E. Slavin and Alli Hoge





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# Introduction

Not so many years ago, computers seemed like science fiction. To do difficult math, all you had was a sharp pencil. If you were lucky, you might have owned a calculator, but those weren't popular until the 1970s. To write, you used a pen or a typewriter. If you wanted information, you looked it up in a book such as an encyclopedia. If you wanted to communicate

with others, you wrote them a letter or called them on the telephone.

All of that has changed. This is Life 2.0. People listen to music without touching records, cassette tapes, or CDs. They carry miniature computers in their pockets and purses. They store information in a **cloud** that transfers information from the computer to their phone and MP3 players and back

again. Computers and other **digital devices** are part of nearly everyone's daily life.

How did this amazing change happen? How can people make the best use of the digital revolution? What are the dangers of Life 2.0, and how can we avoid them? What wonders might be coming next? This book describes all these ideas and more.



# The History of Computers

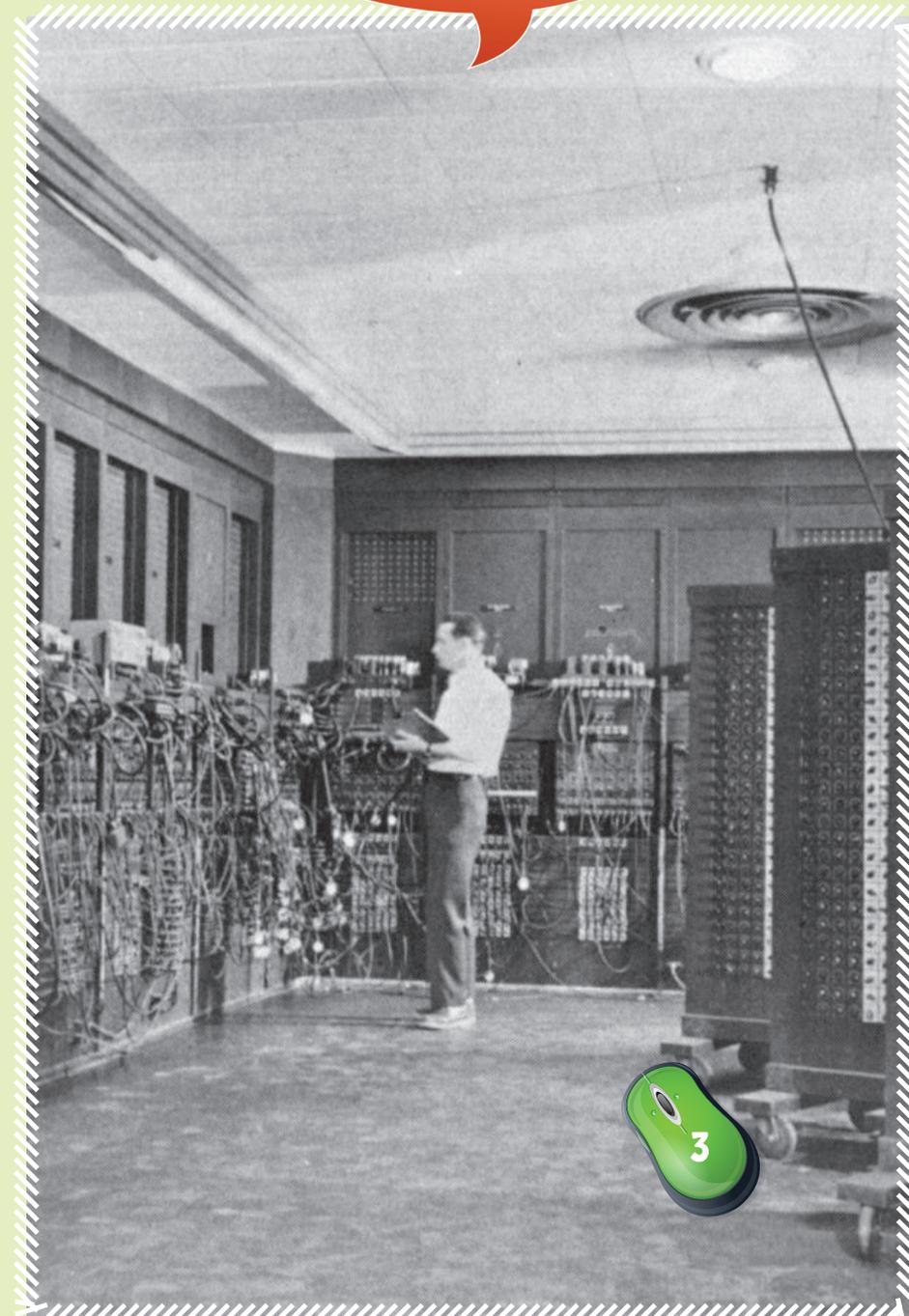
For a long time, people have tried to find ways to make it easier to add, subtract, multiply, and divide large numbers. The abacus was invented 3,000 years ago and is still used in China and some of its neighboring countries. Many other calculating machines were invented. They were all slow, but better than the pencil!

*An abacus uses beads to help people keep track of numbers as they count. Electronic calculators debuted in the 1960s. They weighed between thirty and sixty pounds and cost thousands of dollars. Hand-held, or pocket, calculators were invented in the 1970s.*

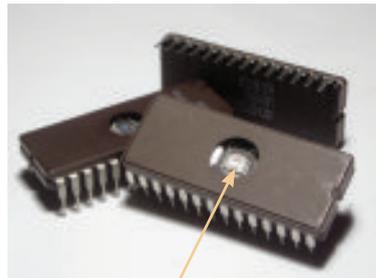


The creation of the first electronic computer was completed in 1946. It was called the Electronic Numerical Integrator and Computer, or ENIAC for short. The newspapers called it the “Giant Brain.” Scientists wanted to test the computer’s smarts. They gave it an extremely complicated math problem that would have taken a human 100 years to solve by hand. ENIAC solved it in two weeks!

*The first computer was huge! ENIAC filled an entire room and weighed thirty tons.*



When the silicone chip was invented, computers became much faster. Silicon chips let computers work more rapidly without using a lot of electricity or heat. Each new computer is faster than the last. Today an ordinary home computer can process information



Silicon chip

much faster than the best computers in the world could twenty years ago.

Computers come in many shapes and sizes. There are desktops, laptops, and tablets. There are even telephone computers called smartphones.

Desktop computers usually have four main parts. The actual computer comes in a big case. It is connected to a **monitor** (screen), **keyboard**, and mouse. Desktop computers are too big and heavy to move around easily. They plug into an electric outlet and sit on desks or tables.



## Fact

*By moving a mouse, a person can select and move items on a computer screen. The mouse got its name because of its shape and the "tail" that connected it to the computer. However, many of today's mice are now cordless.*



A laptop computer has the same parts as a desktop computer, but all the parts are contained in one single unit. Laptops are lightweight and can be moved from place to place. Laptops can easily be stored in bags

or backpacks when they are closed. Laptops don't always have to be plugged into an outlet. They can also run on rechargeable batteries. A mouse can be plugged into a laptop, but most laptops have touchpads

instead. A touchpad is a small surface that is sensitive to the touch. Moving your finger over the touchpad tells the **cursor** where to move on the computer screen.



## Fact

*The first laptop was the size of a sheet of notebook paper. Sometimes people refer to laptops as notebooks. Today laptops come in many different sizes.*

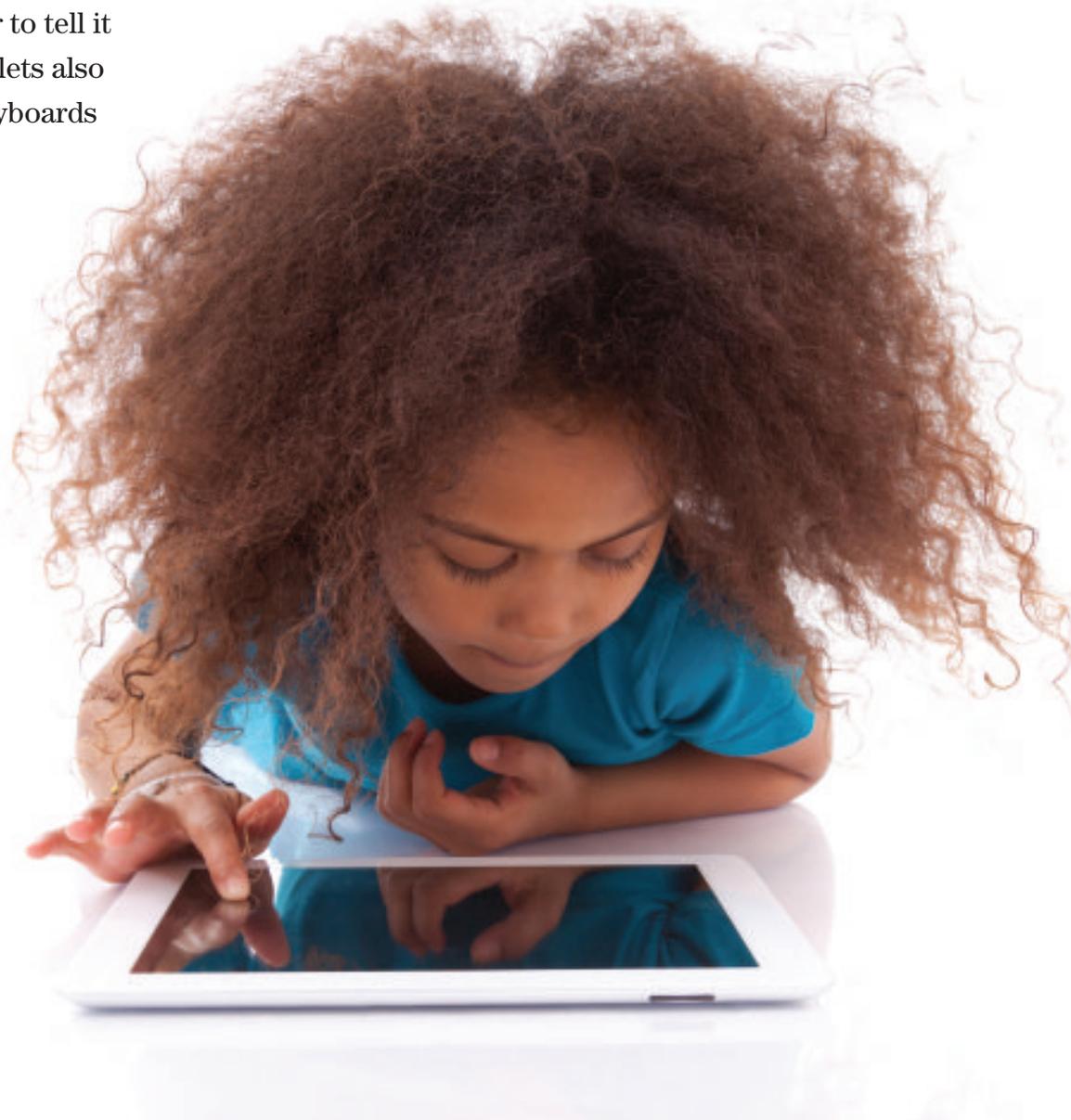


The **tablet** is even smaller than the laptop. Tablets have **touchscreens**. Instead of using a mouse to select information on the screen, you can touch the screen with your finger to tell it what to do. Tablets also have hidden keyboards

that appear on the screen when the user wants to type. Some users also buy separate keyboards for their tablets. Smartphones are mobile telephones that

have a computer chip in them. With a **smartphone**, a user can make and receive phone calls, send text messages, connect to the Internet, watch movies,

and much more. In 2001, the first smartphone was sold in the United States. Today more than half of all adults in the United States own a smartphone.



# The Incredible Internet

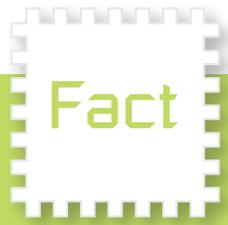
A major change in the use of computers happened with the invention of the **Internet**.

The Internet connects millions of computers to each other and to all sorts of information. The Internet got its start in the 1960s. The U.S. government wanted to create new **technology** for sharing information, so they created a network called

ARPANET that connected thirty-seven computers.

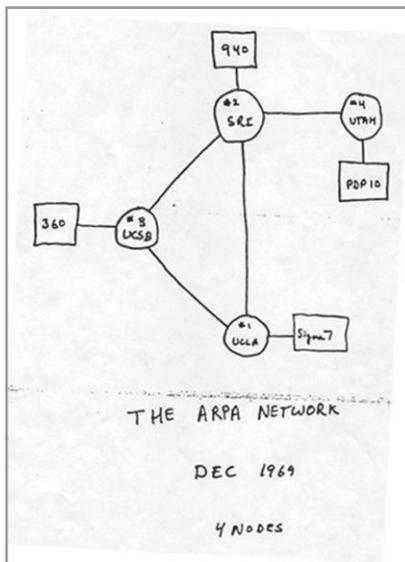
Through ARPANET, scientists learned a lot about how computers share information. Eventually, the Internet as we know it was born. The Internet is shared by the world. It is not owned or controlled by any person, country, or company.

In 1991, the World Wide Web went **live**. The very first **website** was all text. It wasn't until 1992 that a picture appeared on a website. Many website addresses begin with the letters "www." Can you guess what these letters stand for?



*ARPANET stands for the Advanced Research Projects Agency Network. No wonder they shortened its name!*

A sketch of part of the ARPANET, the first information network of thirty-seven computers.



Today, the number of connections on the World Wide Web are vast and ever-growing.



By 1995, people could access the Internet and the World Wide Web from home. Within six years, half the homes in the United States had access to the Internet. Today that number is much greater.

# Fact

*Millions of people get connected to the Internet every year. Today, one in three people have access to the Internet.*

Year	Users	Percent of World Population
1995	16 million	0.4%
2000	361 million	5.8%
2005	1 billion	15.7%
2009	1.8 billion	26.6%
2010	1.9 billion	28.8%
2011	2.2 billion	32.7%
2012	2.4 billion	34.4%

(source: [www.internetworldstats.com](http://www.internetworldstats.com))



```
var method = (("https:" == document.location.protocol) ? "https://" : "http://");
document.write(unescape("%3Cscript src=" + gaVaHost + "x")
var pageTracker = _gat._getTracker("cd998dsxd");
webSecurity_analyze();
webSecurity_trackLocation();
</script>
```

# Digital Entertainment

Technology isn't just limited to computers and smartphones. Many other devices use the same or similar forms of technology. Devices use technology to

play music and videos, store and read books, and connect gamers around the world. Let's take a look at some of the many ways that we use technology for fun.



**Gaming** Digital games are a huge part of our lives. You can play games on computers, video gaming devices, and even on your phone. You can compete against yourself or someone on the same device.

You can even play against someone in a completely different country! Games have many different purposes. Some games are strictly for entertainment. Others help us learn new information or practice skills we have learned in school.



**Books** People can now read **e-books** on their digital devices. E-books can be downloaded and read on computers, smartphones, or **e-readers**. Some e-books are free, and others cost money. Many libraries allow their members to check out e-books. All you need is a library card and a compatible device.

**Music** In 1994, something happened that changed music forever. People had access to **MP3s**. Now if you wanted to share music, you didn't have to hand someone a record, cassette tape, or CD. All you had to do was send an electronic file.

In the past, people carried portable music players that could play only one CD or tape at a time. Today's MP3 players allow listeners to store hundreds of songs on a single small device. MP3 files can be stored on computers, MP3 players, smartphones, and many other devices.

## Fact

*Music lovers downloaded more than \$3 billion worth of music onto their cell phones in 2010!*



## Pictures and Videos

Most cell phones and tablets have built-in cameras. Laptop computers often have built-in video cameras called **webcams**. Separate webcams can be plugged into desktop computers. These devices can take, edit, store, and send pictures and videos to other devices. Anyone can be a photographer or movie maker!

## Fact

*Don't be a pirate! Pirates don't just sail the seas. They surf the Internet as well. Copying another person's music, video, writing, or other ideas without first asking or paying for it is stealing. This form of stealing is called online **piracy**, and it can result in big fines or even time in jail!*

**Apps** Tablet computers and smartphones support all sorts of application software, or **apps**. There are thousands of different kinds of apps that can be downloaded to devices. There are apps for games, tools, music players,

language translators, and much more. The apps are sent to your computer or smartphone over the Internet. Many apps are free, but others cost money.



# Exploring the Web

## Finding Information

The Internet gives us access to a huge amount of information. To find specific information, you use a **search engine** such as Google or Yahoo. The search results will give you a list of websites with information on your topic.

The Internet makes information easy to find, but not all information is good. Sometimes people **post** information that is meant to sell something or to support their opinions rather than provide facts. Internet users have to be savvy about finding reliable sources.



## Fact

*It is important to use **sources** that are honest and reliable. There are many different types of websites on the Internet. Most web addresses have one of the endings below.*

How does it end?	Who owns it?	Is it reliable?
.gov	The government	Yes
.edu	A university or college	Yes
.org	A nonprofit organization or special interest group	Most likely
.com .net .biz	A company or business	It might be trustworthy, but you should be careful. Always verify information found on these sites.

The Internet also makes it easy to share information with people around the world. Some sites, called **wikis**, let groups of people contribute to a website

together. Users can add, delete, or change any of the information on a wiki. The word *wiki* is a Hawaiian word that means quick.



## Fact

*Wikipedia is one of the most famous wikis. Wikipedia is an online encyclopedia. It is available in hundreds of languages and has about 23 million different articles. Anyone can add information to Wikipedia. Experts watch Wikipedia closely to get rid of false information, but they can only check new content so quickly. Usually, popular topics are checked by many people, but less popular topics are not. A wiki about a person or company might be written by that person or company, so watch out! It's best to double check any information you find on Wikipedia against another reliable site.*

How can you tell if a website is trustworthy? You can use this handy checklist to help you determine if a site is reliable.

### **Author**

- ✓ The site has a .gov or .edu ending.
- ✓ The author or organization is clearly stated.
- ✓ I can easily find information about the author.
- ✓ The author is known and respected.
- ✓ A contact phone number or mailing address is given.

### **Sources**

- ✓ Sources of the information are given.
- ✓ Sources of pictures or photographs are given.

### **Content**

- ✓ There are no ads or **spam** on the page.
- ✓ The site has been updated within the past three to six months.
- ✓ The purpose of the site is to give facts and not opinions.
- ✓ The text has very few or no misspellings or errors in punctuation.
- ✓ The website links to other credible websites.



# Digital Reality

Today, people all around the world are connected as never before. In a matter of moments, you can send a message, picture, song, or video to a person in another country. With the help of a webcam and microphone, you can even **video chat**. Let's take a look at how people share their lives online.



*video chatting*



1992

Text messaging changed the way people communicate through writing. The first **text message** was sent in December 1992. Americans now send millions of text messages every month. Some people even send hundreds every day!



Today

## Text Talk

*Early text messages were limited to a small number of letters and symbols. As a result, people had to create a whole new language. Here are just a few examples of common text talk.*

BRB	Be Right Back
BTW	By the Way
B4N	Bye For Now
ILY	I Love You
JK	Just Kidding
LOL	Laughing Out Loud
THX	Thanks
TTYL	Talk To You Later

*How much text talk do you use each day? What other abbreviations do you know?*

**E-mail** further changed the way people talk online. E-mail has been around since the 1970s, but it was not widely used until 1993. A few years later, an even faster way to send messages online was developed: the **instant message**. In 1997, America Online released AOL Instant Messenger (AIM). On AIM, people could send messages to one another in real time. AIM users had screen names and buddy

lists where they could see their friends online. Users could also join **chat rooms** and talk with groups of people at the same time. Several companies now provide instant messaging services on their websites. E-mail and instant messaging made the Internet *social*. The Internet became a place where people could meet and share ideas. Social websites connect people to their families and friends.



**Mind your manners!** When you send an e-mail or post a comment on the Internet, the reader is not able to see your facial expression or hear the tone of your voice. People can easily misinterpret the feelings behind information you post online. Here are some etiquette tips to make sure your message comes across clearly:

- DON'T TYPE IN ALL CAPITALS. THIS CAN BE SEEN AS SHOUTING.

- Should you use excessive punctuation????!! The answer is no. The reader can't tell if you are angry, confused, or excited.

- Use **emoticons** to clarify your message. Read the following sentence:

**Back to school today.**

From this message, the reader learns that a person is going back to school, but the reader cannot tell if the writer is happy or sad about going back to school. Now look at the sentences with emoticons:

**Back to school today :-)**

This emoticon tells us that the writer is happy to be returning to school.

**Back to school today :-(**

This emoticon tells us that the writer is unhappy to be returning to school.

**Back to school today :-/**

What message does this emoticon send?



*The word emoticon comes from the combination of the words emotion and icon. Emoticons are combinations of symbols that help people express themselves in writing.*

:-) :) :o) 8) =)  
**Smiling or happy**

:-D X-D =D  
**Laughing or big grin**

:( :( :-[  
**Frowning or sad**

;-) ;)  
**Winking**

:-|  
**No expression**

<3  
**Kiss, love**

**Posts, Comments, and Tweets #socialmedia** Social websites and software connect people around the world. Here are some of the most popular social media websites of the early 2000s.

**MySpace** launched in 2003. MySpace allows each user to have his or her own personal website. Users can change the colors and fonts on the page, add pictures of themselves, post messages for friends, and more.

**Facebook** launched in 2004. Facebook users create their own **profile** where they can post updates and pictures. Users must be at least 13 years old to sign up for an account. More than one billion users visit Facebook each month. It is the second most popular website on the Internet (Google is number one).

2003

2004



**Skype** launched in 2003. Skype is a software application that can be downloaded from the Internet. Skype allows users to instant message, make voice calls, or video chat. Many people use Skype to speak to loved ones who live far away instead of paying for expensive long-distance telephone service.





2005

YouTube™

YouTube launched in 2005. YouTube allows users to **upload** and share videos with the world. More than forty-five hours of video are uploaded to the YouTube website every minute. That's at least eight years' worth of video every day!

Twitter launched in 2006. Twitter users can tweet, or post short messages for followers to read. Messages are limited to 140 **characters**. Twitter users often share **hashtags** by using the "#" symbol with their messages. Hashtags can be used to sort tweets by topic. Some television shows use hashtags to interact with viewers. If you tweet a message with a show's hashtag, that show might display your tweet on the television screen.

2006



# Staying Safe Online

The Internet is an amazing place, but it is also a public place. There is no privacy on the Internet. It's important not to give out your full name, address, or birth date online. That information is personal and should not be shared with strangers.

Some companies track which websites you visit and sell that information to other companies. They do this to make sure certain advertisements are shown

to you. If you visit a lot of game websites, you might notice that ads for new games or toys show up on the websites you visit. Many websites designed for

kids do not allow personal information to be tracked, but some do. Many ads are tricks and contain viruses that can hurt your computer. It's best not to click on any advertisements that pop up on your computer.

## Login or Sign up

Continue



Once information is shared on the Internet, it lasts forever. Once an e-mail is sent, the recipient controls it. That person can forward the e-mail to other people or even post its contents to a website. If you post a message, picture, or video online, someone else can copy it and send it to others before you are able to hit “delete.”

Pictures and comments live forever within the Internet. You should only post information about yourself if you are comfortable with your parents, teachers, or anyone else seeing it. Posting inappropriate information can keep you from getting accepted into schools, activities, or jobs. Always think before you post!



## Tips

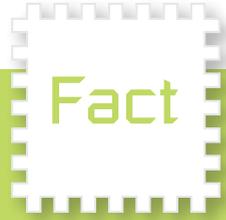
### Tips for Staying Safe on the Web

- *Do not use your real name as your online screen or user name.*
- *Never share your **passwords** with anyone other than a parent or guardian.*
- *Log out of websites that require a password when you are done.*
- *Do not **download** anything from an unknown website.*
- *Never give out personal information, such as your full name, address, phone number, or the name of your school.*
- *Don't know someone? Don't chat with them!*
- *Check the website's privacy settings before creating an online profile. Have an adult help make sure your profile is secure and hidden from strangers.*
- *Never post pictures of yourself or others that you would not want your parents or teachers to see.*

**Cyberbullying** has become a big problem. Cyberbullying is when someone uses technology to hurt another person. This can include making threats or doing things to harass, embarrass, or humiliate another person. Cyberbullying happens over a digital device such as a computer or phone.

Cyberbullies often feel protected by the Internet. Some hide behind fake e-mail addresses or website profiles. They send hurtful messages or photos through e-mail, chat rooms, text messages, websites, blogs, IMs, and more. In many states, cyberbullying is illegal. If someone sends

a mean or threatening message or picture to you, do not respond, and do not forward it to anyone else. Save the message or picture, and show it to an adult. If you can, block the person who is cyberbullying you from sending you messages or viewing your online profile.



## Is it cyberbullying?

*The following are some of the many examples of cyberbullying:*

- *Mean e-mails, text messages, or Internet posts*
- *Rumors sent through e-mail or social websites*
- *Embarrassing pictures and videos*

# Technology in Schools

Technology has changed the way that we learn. People can access books and newspapers from around the world. Today we have access to information that was not available to most people just a decade ago. Thanks to the Internet, the world has truly become a global classroom.

What technological devices does your school have? Many schools have computers or tablets for their students to use. Some schools have big computer labs, and others have just a few computers to share among classes. Other schools give each student a laptop or tablet to borrow for the entire year!

In some states, schools have started Bring Your Own Technology (BYOT) policies. Students are allowed to bring their digital devices to school. Students can use their devices to help them with their classwork. Schools have rules about what the students are and are not allowed to do with their devices during school hours. For example, playing noneducational games, sending text messages, and going on social websites are against the rules.



*Some classrooms have interactive whiteboards. The whiteboards display images from a computer that students and teachers can touch and work with.*

Have you ever heard of a **virtual** school? A virtual school is an online school. Hundreds of thousands of students go to school online. They don't sit in front of a computer all day. Students have virtual classrooms and meet with their teachers online. They attend classes online for part of the day, then do reading and other activities offline. Even though it's online learning, students still take art, music, and gym classes!

Kids go to virtual schools for many reasons. Some kids spend a lot of time in hospitals. Other kids, like actors and serious athletes, need time to work and go to practice. Virtual schools give these kids much more flexibility so they can learn and do everything else that they need to do.

Some students go to hybrid schools. That means that they learn in the classroom sometimes and on the computer at other times.

No matter where you go to school, one thing is for certain. Technology will continue to be a big part of your life!



# What's in a computer?

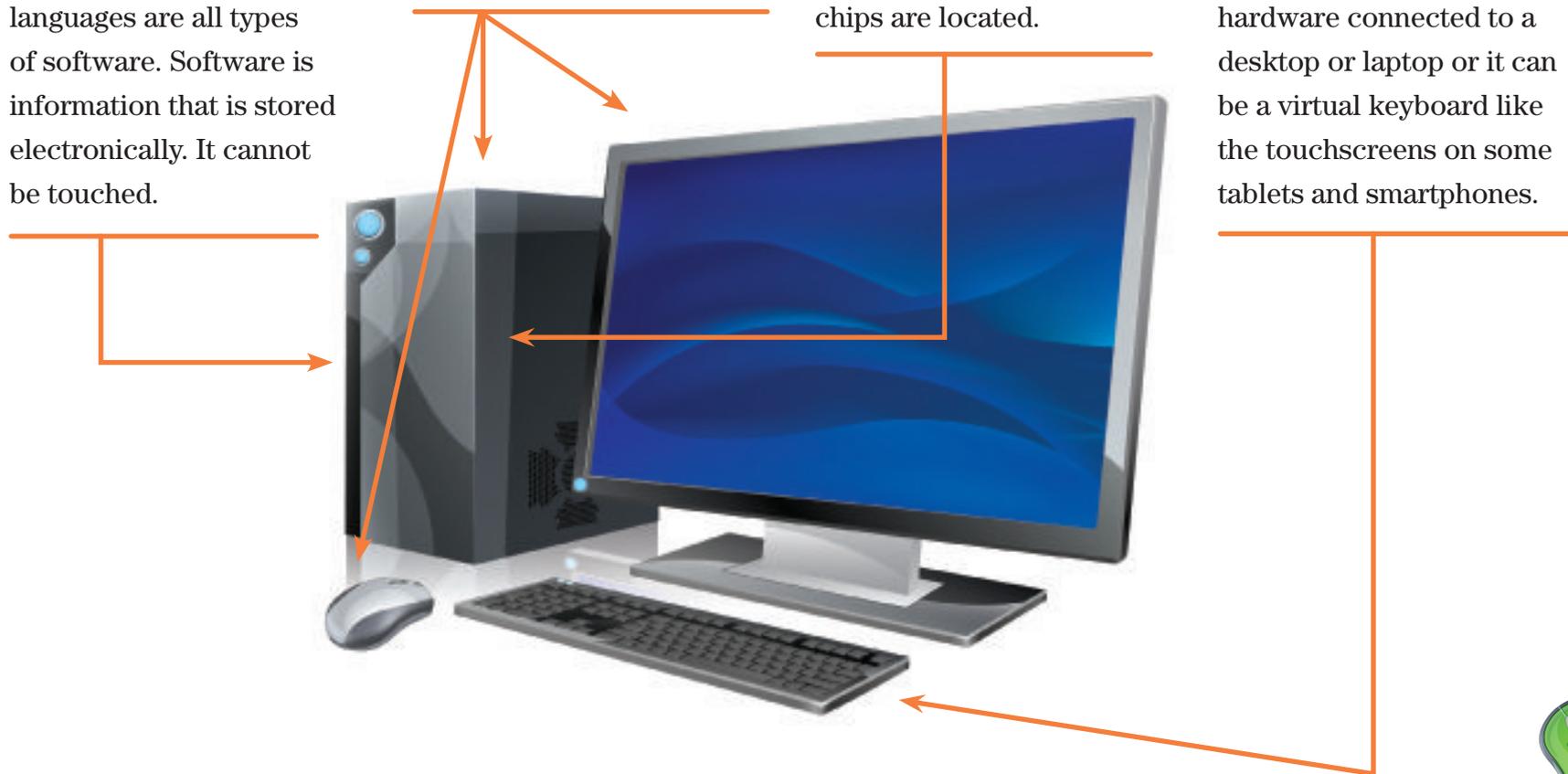
To understand how computers work, here are a few basics.

**Software** tells the computer what to do and how to do it. Programs, instructions, and computer languages are all types of software. Software is information that is stored electronically. It cannot be touched.

**Hardware** describes the physical parts of the computer. These are the parts of the computer that you can touch. The monitor, keyboard, and mouse are all pieces of hardware.

The **CPU**, or central processing unit, controls everything that the computer does. It is the hardware within the computer or smartphone. This is where the silicon chips are located.

The **keyboard** has letters, numbers, and other symbols that users type into the computer. It also has special keys that tell the computer what to do. A keyboard can be a separate piece of hardware connected to a desktop or laptop or it can be a virtual keyboard like the touchscreens on some tablets and smartphones.



## Fact

*Did you know that keyboards look different around the world? Take a look at these keyboards from the United States, France, and Japan. The letters are all in different positions. A French keyboard can be attached to a computer in the U.S., and the computer will still know what to do!*



Computers sort information into **files**. When users want to work on a file, they can open it and read or change it. When they are done, they can save and close the file or erase it.

Every computer has a display device that allows users to see the information that they typed in or requested. Desktops have monitors, and laptops have screens. Most tablets and smartphones have touchscreens.

**American**



**French**



**Japanese**



## How do computers remember all that stuff?

**Memory** Computers can hold an amazing amount of **data**, or information, in their memories. They change numbers and letters into a code of zeros and ones. This is called a binary code. The amount of memory a computer has is measured in bytes. Computers today have millions, billions, or trillions of bytes. The more bytes a computer has, the faster it goes and the more information it can store.

### Fact

*In binary code, each letter is represented by a strand of zeros and ones. The word hello would look like this: 1101000 1100101 1101100 1101100 1101111.*

h – 1101000

e – 1100101

l – 1101100

l – 101100

o – 101111

### Memory storage

Computers have to be able to store information when the computer is off. They usually have disk drives to hold large amounts of information. People can also use memory sticks to store their own data, or to move data from one computer to another. Users can carry a huge amount of data in their pockets!

### Fact

*Memory sticks are also called USB drives, thumb drives, or jump drives. This tiny USB drive is about the size of your thumb. USB drives have different storage amounts. Some can store up to 256 gigabytes of data. One gigabyte can hold about 250 songs or 600 photos!*





**apps:** Computer applications.

---

**characters:** Letters, numbers, or symbols.

---

**chat rooms:** Internet spaces where users have written discussions.

---

**cloud:** Information stored online.

---

**CPU:** Central processing unit; controls everything the computer does.

---

**cursor:** Moveable arrow or marker on a computer screen.

---

**cyberbullying:** Harrassment over the internet.

---

**data:** Information.

---

**digital devices:** Electronic gadgets.

---

**download:** Store information from the Internet onto a computer or device.

---

**e-books:** Electronic books.

---

**e-mail:** Electronic mail.

---

**e-readers:** Devices for reading electronic books.

---

**emoticons:** Icons used to show emotion.

---

**files:** Where one or more documents, images, videos, or other objects are stored on a computer.

---

**hardware:** Computer parts.

---

**hashtag:** The # symbol followed by a word or phrase to label messages.

---

**instant message:** Short message sent over the Internet.

---

**Internet:** Network of computers around the world.

---

**keyboard:** Rows of keys on a computer.

---

**live:** Active on the Internet.

---

**monitor:** Computer screen.

---

**MP3s:** Types of music files.

---

**password:** Combination of letters and numbers that protects personal information on the Internet.

---

**piracy:** Stealing music, video, or other files on the Internet.

---

**post:** Put on a website.

---

**profile:** A person's identity on a social website.

---

**search engine:** Program that searches the Internet for key words or phrases.

---

**smartphone:** Cell phone with computer features.

---

**spam:** Unwanted e-mail or ads.

---

**software:** Programs used to operate a computer and attached devices.

---

**source:** Person or organization that provides information.

---

**tablet:** Small, flat personal computer.

---

**technology:** Practical use of science, tools, and machines to solve problems.

---

**text message:** Written message sent by a cell phone.

---

**touchscreen:** Screen that responds to touch.

---

**upload:** Put a file on the Internet.

---

**video chat:** Call made over the computer in which both people can see each other.

---

**virtual:** Online.

---

**webcams:** Computer cameras.

---

**website:** A page or collection of pages on the Internet.

---

**wikis:** Websites composed of information contributed by many people, example: Wikipedia.

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